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BOARD OF MANAGEMENT.

As there was not enough business of importance on hand to warrant a meeting in September, no meeting was held.

The next meeting of the Board of Management is on Thursday, 21st October, at 11.40 a.m.

RUBBER.

In the first six months of 1909, no fewer than thirty rubber companies have been floated in London, representing a capital of £4,230,000.

In our May number we showed the great fluctuations the rubber market had been subject to between January, 1905, and December, 1908. It is curious that when rubber went away down to 2/9 from over 5/-, a good many people said, "Ah! just as we thought, there is nothing in rubber;" and some who had been keen on planting different varieties, where they could do it economically, at once stopped planting. Now the price of rubber has soared up to a greater height than ever, and ordinarily good rubber is over 6/-, and the finest plantation has even touched 8/6 per lb. At this price, of course, the use of rubber is prohibitive for many purposes for which it could be used with advantage to the world. The price now being paid is of course hugely profitable to those who have it, and some rubber companies in Ceylon and the Strait Settlements, which have been paying big dividends all along, will now be able to pay their fortunate shareholders still larger returns on their investments. When rubber returns to a reasonable price and is not subject to much great fluctuations, the demand for it will be great, and where trees produce fair amounts and can be tapped with economy, it will continue a very profitable investment. We are still, in Jamaica, doubtful about it, because although we do know that all kinds of rubber trees grow very rapidly, there have never been organised tests for tapping results in various parts of the island. Any tests made have been casual and disconnected. We have only gone on analogy—our lands bear all tropical products like bananas, cacao, coconuts, etc., as well as in any part of the world, and better than most. Our soils are better than Ceylon soils, and although our climates are on the average cooler at the same elevations, this does not affect cacao,

bananas, coconuts, etc., therefore, why should it affect rubber? Parts of Mexico where *Castilloa* rubber produces well, have colder nights, and drier spells than we are subject to where rubber is being planted. Unfortunately, Castilloa from all we can learn in Central America, cannot be tapped so economically as Para, the latex does not run so freely; and in the East there is the great advantage of cheaper labour than in the West, but we have a great advantage over Central America in this respect.

As regards tapping Castilloa rubber, however, from Mr. Cradwick's report for July, we take the following:—"A 14-year old rubber tree was tapped at Windsor Forest by the Bowman Northway method, the scoring on a modification of the herring bone system, gave 1lb. of rubber: the spur used four days after gave a further yield of 5ozs., this rubber I forward herewith, with the exception of 1oz., which is in the hands of Mr. Wates. He will tap this tree once a month so long as it continues to yield. I consider the yield most encouraging. This tree is 14 years old and was obtained by the late P. J. Wates, Esq., Elmwood, from Hope Gardens. It is 49 inches in circumference, 36 inches from the ground. Other rubber trees are at Mr. Wates' disposal near to his home and it is proposed that he shall tap these trees at intervals of one a week and once a fortnight, so that observations may be kept as to the effect of tapping of Castilloa elastica. Castilloa elastica was observed to be growing in the Moore Town Valley, and apparently has a plentiful supply of latex. I hope to arrange for Mr. Wates to tap these later, so that we may get some definite information as to the value of Castilloa rubber trees in Jamaica. I must say I am much more favourably impressed with its prospects than I was, as in spite of a tree being attacked here and there by scale insects and a kind of die-back caused by a fungus growth, the majority of the trees grow rapidly and are free from troubles. They break off in hurricanes rather than blow out of the ground, and the breaking off apparently does not do them the slightest harm, in fact I think it would be very advisable to top the trees at about 10 or 12 feet from the ground, as in this case the base of the stem would be thickened and strengthened, and high winds should then simply have the effect of breaking off the top growths without injuring the main stem of the tree at all.

"It has been a matter of some difficulty to obtain reliable data as to the age of trees in Jamaica, but the tree tapped at Windsor Forest is known to be 14 years old."

[This seed came direct from Costa Rica and was collected from under Castilloa trees in the forest that were being tapped.—Ed.]

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RUBBER trees are now being systematically tapped young, and it is stated regarding them that it is a mistake to leave them too long before tapping. It is also stated that, as regards Para and Ceara rubber, at least, early tapped trees are found to yield rubber in increasing quantities, and are like cows that are regularly milked; but that, of course, judgment must be used not to tap the trees to

exhaustion. Trees tapped 24 times in the year, that is, every fortnight, have given double their quantity every year, and a five-year-old tree has given three pounds of rubber, but by this system trees do not live long, perhaps 10 or 12 years.

Those in the East who planted Ceara rubber 16 or 17 years ago, are now wishing they had not been so precipitate. When the price of rubber went down and that of coffee went up, they cut out their rubber trees, yet a single Ceara rubber tree has yielded 7lbs. in the year without being in the slightest exhausted. The poor results heretofore have all been because the right system of tapping has not been struck. We shall probably find in Jamaica that rubber trees are of a great deal more value than we think they are ; but we have yet to learn how to tap.

VARIETIES OF CASTILLOA RUBBER.

I HAVE recently been testing the yield of Castilloa Rubber in this country, and as it might prove interesting to you to compare it with the yield of the same rubber in Jamaica, I send you the results of my test. There are two varieties of Castilloa Rubber, both ap-apparently alike to the uninitiated, but known to rubber gatherers as "Black" and "Yellow Back" rubber. The difference in yield tells its own unmistakable story :—

Variety of Castilloa	Cir. of tree 36in. from ground.	Yield lbs.	ozs.
1—Black Back	52in.	0	14
2—Yellow Back	84in.	4	0
3—Black Back	43in.	0	5
4—Black Back	45in.	0	5
5—Black Back	32in.	0	3
6—Yellow Back	57½in.	2	0
7—Yellow Back	68½in.	4	12
8—Yellow Back	58in.	2	8
9—Black Back	54in.	1	4

These nine trees were taken at random from the first lot that I came across, and they were tapped in a rather crude fashion with a machette, from six feet to 20 feet from the ground, according to the growth of the trunk.

Eight days after when the rubber was dry, the yield of each tree was collected and carefully weighed on the spot and measurements taken.

The trees were apparently all of the same age, with the exception of Nos. 2 and 5, and had been repeatedly tapped, the last time three years ago.

Yellow Backs Nos. 2, 6 and 8, would have yielded quite a half more rubber again had they not been badly decayed.

I have seen a good number of Castilloa trees in Jamaica, and from what I now know, I guess the planters there have got hold of the wrong sort, *i.e.*, the "Black Back," and if they intend extending

their plantations, they should see about getting the right sort of seeds to plant, if not there will be wailing and gnashing of teeth when the time arrives for getting their results.

I read in some recent paper that Messrs. Cradwick and Wates had tapped a 14-year old Castilloa rubber tree, and got the "splendid" yield of 1lb. rubber from the first tapping, and some ounces afterwards. Had this virgin tree been of the "Yellow Back" variety, it would have yielded eight to ten pounds dry rubber at least. I may add that the term "Black" and "Yellow Back" in no way describes the difference of the trees, this is a study in itself.

I hope to send out some "Yellow Back" seeds from the best trees next year, and start again on right lines.—*C.R. Correspondent*

THE USES OF THE EUCALYPTUS.

A TRICKY contractor engaged in building a pier at Oceanside (California), substituted the cheap and supposedly inferior eucalyptus that grew nearby, for the more expensive Oregon Pine that was called for by the specifications, for the piling under a portion of the structure. A few years later repairs became necessary, and the substitution of eucalyptus (known as blue-gum) was discovered. However, the Oregon pine was found so far decayed that all piling of that kind had to be removed, while the blue-gum was perfectly sound. That started investigation into the merits of eucalyptus. It was found to be one of the most valuable of all hardwoods for piling, bridge timbers, telegraph poles, fence posts, and all other purposes, involving exposure to the ground, moisture and the weather. The fact that it resists, to some extent, the attacks of the teredo and other marine borers, renders it particularly valuable for piling. It is of very rapid growth. There are fine, straight trees standing from the original planting that in twenty-five years have attained a girth greater than that of oaks three hundred years old. Yet eucalyptus will answer every purpose for which oak is employed, and is admirably adapted to many uses for which oak is entirely unsuited.—*The World To-day.*

There are many varieties of the eucalypti, blue-gum is the *Eucalyptus Globulus*, from the leaves of which the oil of eucalyptus is distilled. This oil is a powerful antiseptic and deodorizer; a febrifuge, anti-asthmatic and anti-spasmodic. Its use in influenza and cold is well known. Infusions, decoctions, and even cigarettes are made from the leaves.

The blue-gum is said to have excellent sanitary effects when planted in malarious districts, such as the Roman Champagna,—parts of which have been already reclaimed by its use. This result is brought about, partly by the drainage of the soil (the trees absorbing great quantities of moisture), and partly by the balsamic odour given out, which the mosquito dislikes. It would surely be a valuable investment to plant these trees, in swampy waste lands, especially near sea ports, and railways. And lands now lying idle

and useless, might be made into valuable assets for posterity—especially in a country which is gradually, I may say, rapidly being denuded of its fine valuable timbers—and little or no re-afforesting being done.—S. S. SCHARSCHMIDT, 24/8/09.

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[We have repeatedly drawn attention in the JOURNAL to the necessity of planting useful trees on estates where the trees of most utility have been cleared off. This is not an expensive operation here where native lumber trees propagate themselves so readily. We have especially called attention, however, to the economic value of eucalyptus trees, a value so largely recognised now outside of their native home—Australia. Eucalyptus trees grow quickly, provide hard grained wood, fit for nearly all purposes, their blossoms provide nectar for bees, their leaves provide oil, and they are healthy trees to have on an estate.

We published an article in May JOURNAL from the *Hawaiian Forester* showing what was being done in Hawaii, and the excellent results attained in a limited number of years from the planting of eucalyptus.

We would call attention to the letter published under "Correspondence" in June JOURNAL, which is from a member of the Society in Cuba, where he is in charge of a very large plantation. There besides other extensive agricultural operations, they are planting 100 acres of eucalyptus trees.

Our correspondent says : "I should have thought Eucalyptus the best trees to plant in the city of Kingston, as they grow straight, will not require constant lopping and do not shed a litter of leaves that will require much cleaning, while they are continual and inexpensive sanitary officers, providing natural drainage, and filling the earth and air with antiseptic and pleasant odours."

Eucalyptus Globulus, however, is not supposed to grow well in the hot lowlands, but there are other varieties equally useful, which will grow in the hottest and driest places. Then, again, Eucalyptus do not throw any shade.

While we are glad to note all about the country, a few large planters who are allowing woodland to come up again on their back lands, and in some places even on roadside lands where it is rocky, and to note also that these new woodlands are full of young lumber trees, still this policy is not general. Most proprietors prefer to rent such lands for the sake of the present penny. We have heard it said that these proprietors who will not rent their lands but allow them to grow up in woodlands, are selfish and acting against the interests of the country. On the contrary we recognise in them benefactors to the country, whether they are intentionally so or are conscious of doing good or not. Their motives may not always be to grow trees for future use as lumber or firewood, or to grow woodland for the sake of the rainfall, or for conserving the fertility of the soil for future use, but no matter what motives they have, they are rendering a public service, and we should like to see more proprietors do-

ing this—especially that largest of all proprietors the Government, but we regret that the Government have hitherto been the greatest sinners in this respect. Back lands, rocky lands, mountain lands—all forested lands, in their possession are rented. We are very doubtful if the rents are always got or the squatters there always even known, and with this example we cannot say much with effect about not deforesting or re-afforesting. Surely it would be good policy to conserve the best forests we have got,—those on the mountain ridges along the backbone of the island.—ED.]

SOY OR SOJA BEANS.

SOME years ago we tried experiments with Soy beans, realising that these legumes were the richest of all vegetable foodstuffs. Soy beans are the main nitrogenous food of the Japanese. From these beans they make a vegetable cheese which is more to the Japanese indeed than dairy cheese is to us; also vegetable milk. In making the vegetable milk, the beans are first of all softened by soaking and are then pressed and boiled in water. The resultant liquid is exactly similar to cows' milk in appearance, but is entirely different in composition. This soja milk bean contains 92.5 per cent. water, 3.02 per cent. protein, 2.13 per cent. fat, 0.03 per cent. fibre, 1.18 per cent. non-nitrogenous substances and 0.41 per cent. ash. Some sugar and a little phosphate of potassium are added in order to prevent the elimination of the albumen, and then the mixture is boiled down till a substance like condensed milk is obtained. This condensed vegetable milk is of a yellowish colour and has a very pleasant taste, hardly to be distinguished from real cows' milk. The bean yields a fine oil used for culinary purposes, employed as we use lard, coconut oil, or cotton seed oil. The residue after the oil has been expressed (called in commerce bean cake) is used as a fertiliser.

Japan is not able to grow all the Soy beans it requires for the use of its population, and large quantities are imported from Manchuria. Soy beans are grown to some extent also in the Southern States but cannot be grown out of the warmer parts where cotton is grown. Although our experiments did not turn out successful in growing Soy beans, we would not say that they could not be grown here successfully. The experiment only covered one season and in a certain district.

The average production of Soy beans is about 30 bushels per acre, and if anybody would like to grow them we have imported a small quantity for trial. We have the green variety, and these in colour and flavour, could pass as "English Green Peas," while they are decidedly richer in proteim. If we could grow these profitably, they would make a valuable addition to our foods.

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An enormous quantity of Soy bean cake is now being imported into Great Britain from Manchuria. This cake has already won a

at about £6 15s. to £7 a ton. Some recent trials have been carried through in the United Kingdom with Soy bean cake as against cotton seed cake, the results were pretty much equal, with a slight advantage in favour of Soy bean cake.

The following analysis has been made :—

	Decorticated Cotton Cake. per cent.	Soy Cake. per cent.	Soy Beans. per cent.
Moisture -	10.89	13.31	10.23
Oil -	13.18	6.00	15.62
Albuminoids -	40.18	44.37	37.54
Carbohydrates	24.22	25.04	27.27
Woody fibre -	4.13	3.90	5.02
Ash -	7.4	7.38	4.32
	100.00	100.00	100.00
Nitrogen -	6.39	7.10	6.01
Sand -	None	1.20	None

JIPPI-JAPPA HATS.

We have received from the British Consul at Guayaquil through the Government here, procured at our request, samples of prepared straw from which Panama hats are made. It does not appear to be of any better quality than what we have here, except that the straws are much longer, and this is a great advantage. The continued cutting of the bud shoots here without enough being allowed to expand into leaves and so snpply fresh energy to the plant, and the dry weather also, have reduced the length of the shoots, so that the supplies of straw we have been receiving latterly have been getting shorter and shorter. The fine showers that have fallen these last three months will improve the growth now.

In Colombia and Ecuador where Panama hats are made, the plant the straw is got from is botanically *Carludovica palmata*, our plant is designated *Carludivica Jamaicaiensis*, but there is practically no difference between them. We have the authority of Mr. Robert Thomson, who was long years in Colombia, and knew both plants intimately, for this statement.

Through the U. S. A. Consul at Barranquilla, in Colombia, roots of *Carludovica palmata* are being introduced into the Philippine Islands, and it is proposed to introduce an expert curer of the straw from Colombia to teach the art, so that the Philippines may participate in the large demand for Panama hats in the U.S.A. We here have never realised the value of this industry, and it has been one of our hardest tasks to impress the value of it on the country. We have had the plants growing wild already, expert hat makers already here, and a small trade, but the country never set out to build up the industry. Rather it has been most indifferent and unsympathetic. It has been a hard task even to get districts to start classes, and

in some places hard to carry them on after they were started. Sometimes the girls in the districts have looked upon the attempt to form hat classes for them as something they would oblige us greatly by taking part in; other districts of course adopted a different attitude where the ministers and others who were philanthropic enough to interest themselves in the matter, and explain the usefulness of the art, took an active part in the organization of classes.

After many years talking and writing, considerable interest was aroused, and hat classes have been carried through in connection with local Agricultural Societies which have all been self-supporting so far, except perhaps in Clarendon, where they have a local fund to fall back upon which we administer; but no great call has been made upon that fund yet, even there thanks to the Instructor's efforts. Yet not more than 200 girls at the most have been instructed in the art, and we question if even as many are carrying on the trade, whereas we should have thought that the making of hats would have become quite as common as the making of "fancy work." When we state that in Colombia there are close on £80,000 to £100,000 worth of Panama hats exported annually, it might be realized what we might make out of it. It is not like an industry to be started from the beginning. The plant grows without cultivation, and grows best in ruinate, so long as the climate is moist. A good many failures in quality of hats are caused through the poor quality of the straw. Where the plant does not grow or will not grow the straw can be purchased through us. The curing of the straw is in itself an art, and it is well for districts to learn this art co-incident with learning the art of hat-making. Few people can turn out the best quality of straw. We learn that in Colombia the bud shoots are boiled in water containing salt and lemon juice for whitening and rounding its surface; this operation takes a few hours. Then the shoots are put up to dry indoors where there is a current of air but no sunshine. When these are dry they are easily split with a little Y-shaped instrument so as to secure an even fineness of straw. Another account says that the straw after boiling should be exposed to the night air three consecutive nights. One account also says that the straw is pounded over with a small hand maul, after which it is washed with common yellow soap and a little lime juice and put to dry away from the sunlight.

In Colombia it is stated that the manufacturing of hats is affected to a great degree by the climatic conditions, an expert hatter being unable to make as good a hat in the dry summer weather as during the rainy season. Long training is necessary to become a good hatter, and the girls are started at the work at the very early age of 10 years and must practise constantly. Hatters work every day from early morning, wasting very little time in eating, and often carrying on their work by candlelight so as to finish in time for market, for an hour may mean to them the loss of a market day, and the corresponding inconvenience caused by failure to receive the money which would have been acquired from the sale of the hat.

The hats made in the Suaza district of Colombia are considered the best hats and superior to those made in Ecuador.

There is in this jippi-jappa hat business a good living to be made by girls if they start to learn the art young enough, and for any who apply themselves and have supple enough fingers, there is always something to be made in addition to whatever else they may be earning a living from. It seems, however, impossible to awaken the country to a sense of the importance of this industry, and the money to be made out of it. The cry is for money, but how few people will really bestir themselves to foster any industry. It is not talking of what is desirable that will do much good, it is the working to bring about what is desirable in a practical way that is wanted.

MANURING.

Green Dressing vs. Animal Manure.

In keeping up or adding to the fertility of the soil, there is no agency that can take the place of animal manures, when the live stock can be kept at a profit otherwise, either for their flesh when sold to the butcher, or for the milk when kept for dairying, or for their labour when kept for draft purposes.

In some few cases these properties can be combined to great profit, especially by small settlers. We know, for instance, small settlers who have cows that work a sugar mill, that also trace drays up steep hills on banana days, and that give milk also; and finally the butcher will close their career. These cows are also kept in pens where manure is needed, and so there is still an additional profit. Such cows are exceptional, but we know of some—we know of one in fact that died at the good age of something over 12 years.

On sugar estates, the draft animals used in the fields, and on the roads, are carefully penned for the sake of the manure, and so are profitable in a double way.

Most small settlers who might thus get great profit out of their stock, are too careless and not economical enough to "bother" to think and plan out ways to get the greatest profit out of their beasts. It would not do simply to keep stock for the sake of manure and for no other purpose, unless it could be figured out that what was got from the butcher ultimately, would return a profit also.

Where it is difficult to get manure profitably, either by purchase or by keeping stock, then we must turn to green dressings to improve the soil. The plants ordinarily used, however, cannot be used very well among staple crops like coffee and cocoa, as they will not grow in shade.

How to keep up the fertility of small settlers' cane fields that have ratooned for many years, is a problem we are asked to solve. It cannot be solved where the system is followed of cutting out ripe canes, so that there is always standing cane, unless by manure carried on to the fields. This manure can be made in the pen by keeping the working stock there and feeding them by hand; but whether the

effects of this manure will pay for the labour, can only be figured out by the man working the system himself.

Where canes are cut clean out, a crop of cowpeas can be planted through, to be forked in between the roots; this is a good system and pays in results. Where the cane is grown and sold to a factory, there is of course, much loss, as there is little trash left, and something like this must be done to keep up the fertility of the soil.

Where small sugar mills are worked, there is a tremendous waste of cane trash and wood ashes. In spite of all that has been said in this JOURNAL, on the subject, not one settler in a hundred —who works a sugar mill—takes care to gather up the wood ashes every week, say on Saturdays, and apply it to the poorest parts of the soil in the cane field. The wood ashes are allowed to lie in heaps and waste.

Where the cane is sold to a cane factory it might, however be better to allow the cane trash to lie in the fields, than to cart it to a pen to feed stock, unless the stock could also be used for draft or for milk. Their manure is valuable and ought to be figured on.

Nothing can replace good animal manure; but as we have said, it must be figured out carefully at what cost it is secured.

CLEAN WEEDING.

IN the JOURNAL for June, we published an extract from the *Tropical Agriculturist* of Ceylon, dealing with a discussion that has been taking place in that country—on whether clean weeding gives the best results. The subject has been attracting attention not only in Ceylon but in the Malay States in connection with rubber-growing. The gospel of clean weeding, as the Director of Agriculture of the Malay States states in his last annual report, is a tradition handed down from farming in Great Britain to the tea and coffee planters in the East. In Great Britain good farming is associated with the absence of weeds. This is quite true as regards annual crops—crops like wheat and oats and barley, potatoes, turnips and carrots—have to make their growth in four or five months, and so require to be kept absolutely clean and not have their food supply divided with weeds, or have weeds interfering with their growth in any way. Then again, continual ploughing and manuring is kept up for annual crops in Great Britain so that the fields become more and more fertile. Every farm is run in conjunction with live stock, so that animal manure is profitably available. For the cultivation of what we call ground crops—corn, peas, potatoes—clean weeding is required here as much as it is in the north. But all this does not apply at all to the cultivation of staple or permanent crops in the tropics, such as coconuts, coffee, cocoa, oranges. In wet districts where rains are heavy, and especially on hillsides, the soil is not only subjected to heavy wash when it is left bare, but to tremendous evaporation of moisture when the sun shines. It is there-

weeds, so that after cleaning an appreciable amount of "trash" will be left on the soil as a covering. This not only prevents wash, shades the land, but adds humus to the soil. In dry districts it is the simplest way to provide a mulch. In banana cultivations the method is between the two; bananas are quick growers and it is not good to allow weeds to grow among the young plants, not only because they are often weeds of a kind not wanted to spread, such as grass, but nothing should interfere with the quick growth of the young bananas. Here, however, the principle of green dressing comes in, and most banana planters now as soon as their plants appear, plant cowpeas all through. This serves the fourfold purpose of providing a covering for the ground, and so preventing evaporation, keeping the weeds down, providing also a mulch when the vines are cutlassed down; and finally when forked in, furnishing a large amount of humus and nitrogen.

In the heavy shade, however, provided by cocoa and coffee, we have not yet found a leguminous crop that will grow really well. There is a new legume—new to us, but used in some parts of the island before—the Jerusalem pea, which is claimed to do this, but we have not had satisfactory proof yet of its doing well in shade. In very heavy shade few weeds grow at any rate.

Many planters stimulated by the long dry weather, now whenever there is a slack time, cut long grass from the hillsides and spread through their cultivations—this is an excellent system, but it could not be done on a very large scale in Malaya; here, however, almost every estate has waste land of some kind, mostly hillside, where long grass can be cut, and such grass as can be safely put on without the chance of seeds dropping and becoming a weed, such as hay grass and coarse guinea grass. Where young cocoa, coffee, rubber, or oranges are growing, it is better to plant some legume between the trees that will cover the ground, and if we could get one that will re-seed and so save planting twice a year, it would be very suitable. We have often written of one that will do this, the Florida Beggar Weed, sometimes called Tropical Clover (*Desmodium tortuosum*).

It will grow in medium shade but not in heavy, damp shade. It grows along the roadside in semi-dry districts here, and is common in St. Andrew, but curious enough in its wild form stock do not appear to like it, while all stock are ravenous for the cultivated form. Personally, we have grown this plant for years and think a great deal of it under certain conditions.

OTHER LANDS.

An old planter in Ceylon who has long been in Mexico, and has been interested in properties to the extent of 130,000 acres, which owing to its location—nearness to two ports of shipment, navigable river connections and railroad facilities, could not be surpassed for cheap transport, and was only two days distant from the seaports of

New Orleans and Galveston ; with the richest soil imaginable, yet bananas could not be grown profitably there, nor could pine apples, through lack of labour. The consular reports state that this is a great drawback to the growing of pineapples, rubber, coffee, and all tropical products in Mexico. He states that were it not for the labour question. Mexico could supply the greatest amount of tropical products in the world, but until this difficulty is got over, intending British investors are warned to take heed of the United States capitalists who have lost millions sterling in the attempt to grow agricultural products in Mexico. He states that for profitable banana growing as also for tropical fruits, there is no place equal to the West Indies, notably Jamaica.

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The same dearness of labour is the drawback to profitable rubber-growing in all Central America. As far as labour supply and cost of labour are concerned, and these are big items, the East Indies has the great pull on Central and South American agricultural operations. But the West India Islands have their advantages in cheap transport, and fair labour supply.

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IRRIGATION IN HAWAII.—Over half of the fifty odd sugar plantations in Hawaii could not be carried on without irrigation, and of the rest, many use large quantities of water annually for fluming cane, for power development, and for other economic purposes. To bring water out from the moist windward districts and distribute it for use, over £3,000,000 have been expended, wholly by private enterprise, in the construction of ditches, flumes, and tunnels. As all the water supply depends upon the forests on the mountains, steps have been taken for the preservation and extension of the forests ; and five years ago a comprehensive statute was passed creating an effective Board of Agriculture and Forestry, with adequate power. Foresters are employed and there are sixteen forest reserves set aside by proclamation of the Governor of the territory, with a total area of 444,116 acres, of which 60 per cent. is government land. In time it is probable that about 750,000 acres altogether will be included in the reserve.

The second main branch of the forest work at Hawaii, is the planting of desirable trees in otherwise unproductive areas. Leading sugar plantations and stock ranches planted last year nearly half a million trees and this year will doubtless see a much greater increase in scope.

The physical configuration of the land in Hawaii is much the same as Jamaica. It has mountains inland where the rivers rise and the plains lie between the mountains and the sea.

But what are we doing in Jamaica with regard to the preservation of forests? We are every year decreasing the extent of our forests ; the Government who are large landowners, rent forest lands to tenants for the sake of a few shillings a year, and some of such

not very accessible and have not and will not be planted with staple crops as the agreement called for. We wonder how many acres of land sold under the agreement that staple crops be planted, have any such crops planted. Yet when asked to rent bare waste savannah land to a Company for development, impossible provisions are exacted.

ORANGES.

NAVEL oranges have been found to be very shy bearers in Jamaica, no matter what stocks they are grown on. We have seen them on Rough Lemon, Seville Orange, Bitter Sweet Orange, and on Shaddock stocks, and they behave pretty much the same on all of these. In Cuba it is stated in the Transactions of the Horticultural Society there, that navel oranges have been made to bear well by running a knife round the trunk of the tree, cutting through the bark, but not removing any of it, when the blossoms are half grown and before they are open. The trees that are girdled thus, hold the fruit.

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An important point is being brought out in connection with leguminous crops grown between orange trees—that is that they help to keep off attacks of scale. If the velvet bean and Bengal bean are allowed to run upon orange trees heavily, the scale will disappear, but even if leguminous crops are only grown between trees and the ground heavily shaded by them, there will be little or no scale. To allow these climbing vines of the velvet bean and Bengal Bean to run over the tree covered with white scale means of course, that the tree will not bear much for a season, if anything, under the creeper, but then it would not probably have borne well while infested with white scale. After a season, say three months, all that requires to be done is to cut the roots of the vines and they will dry up on the tree leaving it clean, when the tree will instantly put forth an increased foliage and later a good blossom.

* * *

THE great enemy of citrus trees in Cuba is what they call there the "Blue-green Beetle" (*Pachnaeus Azures Ans*), it behaves something like the fiddler or striped beetle here, but seems to be far more destructive. This beetle and others of kindred nature and members of the same genus, live in the foliage of orange trees and other plants, then lay their eggs on the leaves, and the grubs that hatch from the eggs, drop to the ground and bore into the soil and eat the roots. Experiments in saturating the soil round the orange trees with all the usual washes and insecticides have been of little use, including whale oil, lime, tobacco extract, jeyes, salt, crude carbolic acid, etc.

Judging from the way the preparations Apterite and Vaporite

ought to be effective against grubs at the roots of orange trees. The drawback is that these grubs feed deep, while wire worms feed shallow. However, we have not yet heard the results of the experiments in applying Apterite.

INSURANCE ON COTTON.

THE British Cotton Growing Association has made arrangements to insure under their "All Risks" policies (including fire, from arrival at ginnery, or agent's premises, to warehouse in Liverpool, during transit on land or water, storage in warehouse before shipment, lighterage, transhipment, etc.) seed cotton, cotton seed, oil or cake, forwarded to them for sale, either through their agents, or direct, on certain conditions.

This policy covers cotton and cotton seed forwarded or shipped from any West Indian Island.

The rates of premium are as follows, and will be based on the Liverpool value:—

Jamaica	-	8/9 per cent. net
Barbados	-	10/- ,, ,,
Other Islands	-	12/6 ,, ,,

2/6 per cent. additional for transhipment by sloop or drogher in the West Indies.

The amount of the premium will be deducted from the account sales.

Risk from steamer to Liverpool warehouse, carriers, or mills, is covered for a period not exceeding 14 days from date of discharge.

Earthquake risks and its consequences are included, but no claims for any one earthquake, or damage resulting therefrom, to exceed the sum of £20,000.

COFFEE.

THREE-FOURTHS of the world's supplies of coffee comes from Southern Brazil—the State of San Paulo. The United States, Germany, France, and Austria, all used Brazilian coffee largely, the United Kingdom very little.

The Government of the State of San Paulo, realising this, decided to bring their staple product into popularity in Great Britain. They therefore appointed a State Delegate, who is now resident in London. His mission is to watch the commercial interests of his State and to supervise the work of popularising their coffee.

At once the trade brand "Fazenda" Coffee was adopted and under the agent's supervision, the coffee under this brand is packed in hermetically-sealed tins to preserve the freshness and aroma, and the government seal and guarantee of absolute purity is affixed to each tin. The result is Brazilian coffee is now being used in large

quantities in the United Kingdom to an extent exceeding the value of the whole of our exports of coffee,—and that in a short time.

In Jamaica we have had free advertisements galore of our island, our coffee, our rum, our oranges, our hats,—all our products that we might make a substantial trade in, in addition to whatever trade we may have through ordinary trade channels. We have taken part in exhibitions, where, when we put our best foot foremost to try what we could do, we always did well. But for the want of sustained effort, for the want of co-operative effort, and concentration of ideas to put our house in order, one thing at a time and sticking to it until it is done to get at just that trade that Brazil is after with her coffee, that the Australian colonies are after with honey, and other products that do not interest us as honey does, that the South African colonies are after with their oranges, to get the early market, as California has already the pick of the late market (while we equally well could supply both), we languish with a score of our products that much money could be made out of.

FERTILITY OF THE SOIL.

An American paper says "The farmer who so manages his farm that it decreases in fertility, is a sinner against his Creator and the well-being of society." That is strong language, but would that the fact could be realised here. The waste of fertility amounts almost to a crime against future generations; so we have always thought ourselves. The man who leaves land more fertile than he gets it has done his country a good turn. The hand of destruction has been at work here for years; criminal waste still goes on. There are thousands of people who think there is no harm in ill-using their soil, wasting the best inheritance, and leaving their country poorer than when they entered it. Our agricultural operations should all be founded on this basis—increase in fertility. Increasing fertility means increasing crops and increasing revenue individually and to the country.

Our Agricultural Instructors have been hard at work of late years trying to stem this tide of destruction, trying to show the small settler how to conserve fertility and increase it. It is a hard task, but they are succeeding. This Journal preaches manuring, and manuring, and manuring all the time; the saving of every particle of wood ash, of every scrap of waste from the household, of all manure from animals; but all around we see grievous waste of matter that could be saved without much trouble, without any expense, and go to increase the fertility of the land and help to increase our crops.

Be Brave Always.—Misfortune, sorrow, and obstacles call for all the courage of humanity. To be brave is to be beneficial: it is in the time of trouble that we most need courage; for by it we not only strengthen ourselves, but can help others. The dross of the metal is always eliminated by the fire through which it passes. So should sorrow purify and strengthen us; they are the bravest hearts who go to the front.

VELVET BEANS.

In No. 1 of the new *Philippine Agricultural News*, it is stated that the trials of velvet beans there have not been very satisfactory, but that the Bureau of Agriculture has discovered and brought into cultivation a new velvet bean *Mucuna Lyone*, which grows wild and has hitherto been undescribed. It has now been grown experimentally to the third generation, is losing the woodiness of the main stem, and continues to be very prolific. The seeds too, are palatable, and with further improvement by cultivation will be improved. In general vigour and productiveness as well as seed, it far surpasses *M. Utilis* (Velvet Bean). This discovery of the economic value of *Mucuna Lyone* is considered very important. This bean is to be introduced into the Southern States.

COCOA.

It is not usually understood that besides supplying nine-tenths of the coffee of the world, Brazil produces one-fifth of the whole world's supply of cocoa, and is fast increasing her output. Three-quarters of that comes from the State of Bahia alone. The exports of cocoa from Brazil are about equally divided with the United States and Germany, and France comes next, and the United Kingdom next. The area of land in the State of Bahia alone suitable for cultivation amounts to about 40,000 acres in extent, and the conditions existing there are so favourable for the growth of the cocoa tree, that its cultivation entails upon the planter but a minimum of labour and trouble. The great drawbacks are the lack of means of transport; a cocoa planter has to pay the equivalent of something like 4/- a bag for the transport of his cocoa from his plantation to the capital over mule tracks and down rivers.

CASTOR OIL.

No plant grows more readily here, whether in dry districts or seasonable districts, than the castor oil plant. It bears well in any odd corner, yet we import castor oil for medicinal purposes and other oils for which castor oil can be used. As a stock medicine as well as a human medicine, it is a great deal better than many of the pills and potions so largely dispensed throughout the island.

In former Journals we gave particulars of how it could be specifically used as a medicine for all kinds of stock, how it was almost unexcelled as a dressing for leather, to rub into harness, leggings, and working boots, and how it could be used as a lubricant for many kinds of machinery such as sugar mills.

Small settlers should hardly ever require to buy oil for any of the purposes named. For dosing stock they should be very careful,

however, to give the specific quantity advised in the JOURNAL, as it can be very easily over done, and when preparing it, it should be well sieved to take the gritty matter out.

At shows we judge castor oil on the following points: that it should be as nearly tasteless, smell-less and colourless as possible, and without sediment.

BIRDS.

THERE has recently been a great deal of talk about the introduction of birds into the islands, and some by no means well-advised suggestions have been made in this direction. If birds are to be introduced at all, I know of none more likely to be of great value than a common black-and-white Australian fly-catcher related to the little native "Elepaio." I referred to this bird in the Proceedings of the Hawaiian Entomological Society, Vol. 1, p. 10, as follows:—"Another species (of fly-catcher) is commonly seen catching flies off the backs of cattle. It would be most valuable in these islands." An ornithologist (whose name I forget), connected, I think, with the Museum at Brisbane, informed me that it would be possible to introduce this bird. I myself had daily evidence of its great value.—*Hawaiian Agriculturist.*

RUM SHRUB.

To every 300lbs. of sugar put 11¼ gallons lime juice, the limes to be half-ripe, and 80 gallons of 23 proof rum.

First strain your lime juice thoroughly through a cloth, then put the sugar in a puncheon, add the lime juice and mix well until in a day or two you find the sugar quite dissolved. When this is the case add your rum, and stir well at intervals for two or three days until the whole is thoroughly well mixed, then put in some colour, the white of a few eggs and a little milk and mix the whole well together, and then allow it to thoroughly settle for a few days. Draw off by a pipe stem bamboo about six or eight inches above the bottom of the cask.

* * *

Another.—To make 1 puncheon shrub, 300lbs. sugar, 11¼ gallons lime juice, 80 gallons 23 proof rum.

To make 1 hogshead shrub, 150lbs. sugar, five gallons, five bottles lime juice, 40 gallons 23 proof rum.

To make 30 gallons shrub, 75lbs. sugar, two gallons 5½ bottles lime juice, 20 gallons 23 proof rum.

To make 15 gallons shrub, 37½lbs sugar, one gallon, 2¾ bottles lime juice, 10 gallons 23 proof rum.

To make 7½ gallons shrub, 18¾lbs. sugar, 4¼ bottles lime juice, five gallons 23 proof rum.

COCONUTS.

As all nuts are reproduced from seed, there are naturally very nany different types, not only as regards the size, colour and shape of the nut, but in the habit of growth of the tree, time the tree akes to come into bearing—prolificness or otherwise. There is also a very great difference in the nuts themselves, some have a hick, heavy husk and a comparatively small nut, whilst others have a large nut and a thin husk, some have both. Some have round nuts, some have long nuts—there are many different shapes. The ize of the nut is not by any means a reliable indication of the quantity of flesh or copra it will yield, as some of the largest nuts have quite a thin flesh that dries light, and some of the smaller nuts a thick flesh that yields a good percentage of copra.

We have many different types here, and we should like if some coconut growers would send us a note of the different kinds of coconuts they have. We need a great deal of light thrown on coconut cultivation here. Hitherto we have gone along anyhow, and hanks to fine soils, a suitable climate, and nearness to northern markets, have done well. But if we could apply the same principles to coconut culture as are applied to orchard cultivation, and could know more about the different types of coconuts, we would probably find that there are early bearers and late bearers, that round nuts and oval nuts, thick husks and thin husks, do not appear at random —that they are varieties.

INTESTINAL PARASITES.

The symptoms of intestinal parasites are emaciation, anaemia, in some instances severe scouring, while in other cases there is severe constipation, although the causes are the same. The animals lose flesh rapidly, and before death will be but ordinarily skeletons. There have been scores, we might say hundreds, of deaths reported to us, of goats and sheep, during the last six months, which from the symptoms we think were worms in the intestines.

Where a few animals only have to be dealt with, a dose of turpentine and castor oil is an old reliable remedy (in doses as already noted in the Journal), but there is a newer and better remedy, which if used with discretion, can be used on a whole flock of goats and sheep, and the animals will take the medicine readily themselves. Take dry tobacco leaves or tobacco stems and pound or grind them into a fine powder. Mix a pound weight of this tobacco powder with an equal weight of fine salt, and place the box where the animals have constant access to it. After a week increase the quantity of tobacco so that the proportion is two of tobacco to one of salt. The nicotine in the tobacco will kill all parasites in the intestines and will not harm the animals.

Scalding hot milk is more effective in removing stains from linen or cotton fabrics than boiling water.

PRAEDIAL LARCENY BILL.

His Majesty not having been advised to exercise his power of disallowance with respect to Law 4 of 1909 : "A Law in aid of the Laws relating to Prædial Larceny, 1909," the Governor has issued a proclamation which appeared in the *Jamaica Gazette* on 23rd September, 1909, bringing the Law into operation on Monday, 1st November next.

JAMAICA—LAW 4 OF 1909.

(A Law in aid of the Laws relating to Prædial Larceny, 1909.)

Be it enacted by the Governor and Legislative Council of Jamaica as follows :—

1. Whenever any person, h erinafter called a suspected person, has been or is in possession of any of the articles of agricultural produce mentioned in Schedule A, or of any other articles of agricultural produce which the Governor in Privy Council by order published in the *Jamaica Gazette*, may at any time hereafter add to the said Schedule, under such circumstances as shall reasonably cause any officer, or sub-officer of constabulary, constable, district constable or person authorised as hereinafter provided, to suspect that such article has been stolen, or has been received knowing the same to have been stolen, or has been in any other way dishonestly come by, it shall be lawful for any such officer, sub-officer, constable, district constable, or person authorised as aforesaid, to arrest such suspected person without a warrant, and take him with such article or articles of agricultural produce forthwith before a Justice of the Peace, or Clerk of the Courts; provided always, that the Governor in Privy Council may, by order published in the *Jamaica Gazette*, remove from Schedule A hereto, any article therein mentioned, or added thereto by the Governor and Privy Council, and this law shall uot apply to any article so removed.

2. The Jamaica Agricultural Society, and any local Agricultural Society duly constituted and affiliated to the same under the constitution and rules thereof, may, and the Board or Committee of Management of such Jamaica or local Agricultural Society may, at any ordinary or general business meeting, nominate any person or persons to the Inspector General of Police to be authorised persons under this law, having authority to arrest and deal with suspected persons as provided in the preceding section. It shall be lawful for the Inspector General of Police on the nomination aforesaid, and with the sanction of the Governor, to appoint the person or persons so nominated, to be persons authorised under this law, having authority to arrest and deal with suspected persons as provided in the preceding section.

Provided that lists of all such authorised persons shall, before their authority shall commence, be published in the *Jamaica Gazette*, and the production of a copy of the *Jamaica Gazette* containing the name of any authorised person shall be conclusive evidence that such person has been duly appointed. The Inspector General may at any time revoke the appointment of any person authorised as aforesaid.

Whenever any expense has been incurred by any authorised person in connection with the arrest or attempted arrest or prosecution of any suspected person under this law, the Governor may, in his discretion, grant compensation to such authorised person for such expense out of the general revenue of the colony, under the same conditions as those in which compensation may be made to a constable: provided that such ex-

pense be recommended by the Agricultural Society by which such person was authorised.

3. If after enquiry into the circumstances of the arrest of such suspected person, which shall be on oath except as to any evidence given by the suspected person, the Justice of the Peace or Clerk of the Courts is of opinion that the arrested person was in possession of the article of agricultural produce under circumstances of reasonable suspicion and that such suspected person does not give a satisfactory account of the manner in which he became possessed of such article, he may, in default of sufficient bail, order that such suspected person be detained in custody until the next convenient sitting of the Resident Magistrate for the parish, provided, that such detention shall not exceed seven days. Such Justice of the Peace or Clerk of the Courts may, after holding such enquiry, commit such suspected person for trial before a Resident Magistrate, on a charge of being unlawfully in possession of the articles of agricultural produce of which he was in possession, and such Justice of the Peace or Clerk of the Courts may order such articles of agricultural produce to be detained pending the trial of such suspected person. If the Justice of the Peace or Clerk of the Courts after enquiry, is not satisfied that the arrested person was in possession of the article of agricultural produce under circumstances of reasonable suspicion or is satisfied with the account given by such suspected person, he shall forthwith discharge the suspected person from custody.

4. On the trial before a Resident Magistrate of any such suspected person, on a charge under this law, the burden of proving that he became honestly possessed of any article of which he was in possession as aforesaid, shall be upon such suspected person; and if he shall refuse or be unable to satisfy the Resident Magistrate before whom his trial takes place, that his possession of the said article was honest, it shall be deemed to be *prima facie* evidence of his guilt, and the Resident Magistrate may convict him of the offence with which he has been charged as aforesaid, and may make such order for the disposal of the article or articles of agricultural produce of which he was in possession, as may appear to meet the justice of the case.

5. Every person committed for trial under this law, shall be tried by the Resident Magistrate on indictment, which may be in the form in Schedule B hereto.

6. Any person convicted before a Resident Magistrate of an offence under this law, shall be liable to imprisonment, with or without hard labour, for a period not exceeding six months; and upon any subsequent conviction on a similar charge to imprisonment, with or without hard labour, for a period not exceeding twelve months.

7. In all proceedings under this law, the suspected person, and the husband or wife of such suspected person, shall be competent but not compellable witnesses.

8. All proceedings under this law shall be free of fees and stamp duty.

9. This law shall not come into operation, unless and until the Officer Administering the Government notifies by proclamation, that it is His Majesty's pleasure not to disallow the same, and thereafter it shall come into operation upon such day as the Officer Administering the Government shall notify by the same or any other proclamation.

PRÆDIAL LARCENY LAW, 1909.

Schedule A.—Logwood, fustic, cedar, mahogany, satin wood, mahoe, lignum vitæ, ebony, bitterwood, spars, lancewood, pimento stick, orange sticks, canes, cacao or chocolate, kola, nutmegs, ginger, arrowroot, pi-

mento, tobacco, annatto, coconuts, oranges, grape fruit, forbidden fruit, shaddocks, lemons, limes, apples, grapes, pine apples, bananas, plantains, breadfruit, yam of any kind, and heads of yams, cocoes, and heads of cocoes, potatoes and sweet potatoes, cassava, peas, beans, indian corn or maize, guinea corn, garden vegetables, plants or suckers of any of the above, sarsaparilla, coffee.

Schedule B sets out the form of information for prosecution under the law.

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THERE was so much said about this amended bill in the newspapers when it was first brought before the Legislative Council, that some of our Branch Societies wrote asking for explanations regarding it. We said then that it was not a bill that would satisfy cultivators ; it did not go far enough, but it was some improvement on what was law—although in our opinion if magistrates would only act up to the full extent of the laws already provided, there would be fewer "habitual" robbers of crops about. We are afraid that some clerical friends at that time were rather influencing judgment against this bill. We gave them credit for feelings of humanity, but the truest humanity is to save those who try to be honest and industrious from being stirred up, to take sharp measures on their own responsibility. We pay for the law to protect us, and we should give it every chance to do so—but it should do its part to the full. It is no humanity to save and protect a dog that bites from being chastised ; if not there would be plenty of biting dogs about.

Over 60 local Agricultural Societies with over 2,000 members, discussed and debated what ought to be done to check the stealing of our agricultural products, which it was almost unanimously considered was increasing, and was in many places almost fatal to industry. This matter touched small settlers more than any other class, and it was right they should, through their agricultural organisations, give their deliberate opinions. These opinions were in many cases strong, and the remedies suggested most drastic sometimes. We remarked closely that whenever a clergyman had himself a cultivation, his opinions were quite as strong as any layman. One who does not himself own or rent a bit of land and try to cultivate, is simply not in a position to discuss this question. This matter too, is not one that townsmen can feelingly understand. We hope that all agriculturists will not be indifferent now, because the excitement over the Praedial Larceny Bill is over, but that those who are most concerned, and who are the producers of the island, will study the bill as printed, discuss it and try to follow it out.

Some terms that were meant to appeal to our sense of fairness were used against this bill. One of these was the term "Un-English,"—it was called an Un-English measure. This was sheer nonsense. It was nonsense in the first place because it is not in the least true; they go further in England than we do. A policeman, or man of property has more power—and takes it—to stop thieving than we attempt here. If between bed-time and sunrise a man walk through a town, or along a country

road carrying a parcel or hand bag, it is almost certain that if he meets a policeman, (and being in the least suspicious looking) the latter will flash his lantern on him, and ask his name, where he is going, where he is coming from, and what is in his parcel, etc., and if he is honest he takes no objections to be questioned for he knows this is for the protection of honest men. Furthermore, if a gamekeeper found a man walking along a road opposite his employer's estate in the night, although the man was not on the pro perty, and carrying a rabbit or hare, he would very quickly stop him and make him account for the game. But we have not had power to stop a suspicious-looking man, at a suspicious time, with suspicious produce in his possession, and policemen are too few and far between to appeal to. Nobody in his senses would stop and query an ordinary man at an ordinary time near his property. We who wish to be honest and know that honesty is best, wish to have such powers as is given us by the law, that is, to give nominees of local Agricultural Societies power to assist the police in this way. These organisations of small settlers it is hoped, will then feel that a great responsibility is placed upon them, and that they are jointly and individually responsible if stealing in their district is not diminished.

Then again, even if we were taking more drastic measures than those prevailing in England now, why should we not take special measures to deal with special conditions? The measures that may suitably deal with conditions in Lancashire, are not measures that may suit conditions in Natal or Jamaica.

In England, Scotland or Wales, there are no such numbers of small farmers with small unfenced cultivations, scattered all over the land as they are here.

Yet in Ireland have not special, drastic, and "Un-English" measures been taken to deal with conditions occurring there, that do not occur in Scotland, England or Wales.

There is nothing very drastic in the onus of proof of honesty being placed upon the accused in connection with the possession of agricultural produce.

A great responsibility is placed upon Agricultural Societies, and we trust they will accept this responsibility gravely and with due understanding of what it involves.

DESTRUCTION OF RATS IN CANEFIELDS—The following plan has been adopted with success:—As soon as the crop was off (as nothing can be done amongst full-grown cane) great slaughter was caused by laying baits of ripe cane; the cane being split into two or more pieces, 6 in. long, and saturated by dipping in a 2 per cent. solution of strychnine. As long as there was little new cane to be got, these baits proved an irresistible attraction to the rats: after the cane was up the rats were not so keen, and a new medium of bait had to be tried. The following was the most successful:—Green sweet potatoes sliced up into small pieces (the small tubers were mostly used), allowed to dry for twenty-four hours, and then, as with the cane bait, dipped in a 2 per cent. solution of strychnine. These were freely taken by the rats, of which large numbers were destroyed.

Another simple plan, said to be very effective, is worthy of trial: Dress plenty of bits of straw with strong birdlime, and spread these thickly on the ground around the burrows. Amongst the straws throw some attractive bait—barley or malt sprinkled with oil of carraway is a good draw. Next morning the straws will be found gathered up in little bundles. and in the centre of each will be found a rat dead or alive.

POULTRY NOTES.

Diseases—(Continued).

(6) *Cholera.*—This is a disease usually described as "fowl ickness," but it really is enteric fever, and is very contagious. Vhen fowls are seen suffering persistently from diarrhoea and their ombs begin to get shrunken and dark-coloured, all the flock should t once be treated by putting epsom salts in the water supply, 'hile the particular fowls noticed to be sick should have a ose of a teaspoonful of castor oil and be kept strictly apart. f many of the fowls begin to show symptoms of attack by .tting about in corners without moving, looking most deject-d, it is as well to separate them at once, and either dig over ıe yard or lime it, and if neither can be done spread straw r trash of any kind that will burn, wherever the fowls ave congregated, and burn over the places. The fowls not attack-d should be fed on parched corn or on rice for a week, and the ice should be partly boiled, enough to become soft; this food hould be fed in pans and not on the ground. The yard could also e watered with jeyes and water to help to prevent the disease preading. However, rather than treat those badly attacked, it is etter to kill them at once and burn them. This disease especially ttacks the bowels, which become inflamed. The oil treatment and diet of rice soothes the inflammation. If fowls happen to have een largely fed on corn in confinement, or have been kept so that hey could not get the chance to pick up grubs, a good feed besides he rice would be cheap meat like liver or lungs of animals boiled ell and chopped, fed for a week. A very starchy diet like corn, reen bananas, etc., alone, favours attacks of this trouble.

(7) *Indigestion.*—When you see a fowl or chicken doubled up rith its head between its wings, you may take it that it suffers from eing crop-bound or from indigestion. On taking up the fowl if he crop is found to be hard and tight, a dessertspoonful of sweet il should be given, and the crop gently kneaded with the fingers to ry to loosen it. The next day a teaspoonful of castor oil could be iven and if this treatment does not succeed in clearing the crops, hen some epsom salts should be dissolved in warm water, two tea-poonfuls to a pint, and this warm water given to the fowl, that is, oured down its throat with a spoon, until the water begins to re-urn, then the crop can be kneaded again. But usually the oil treat-ment is sufficient. If, however, it has happened that the fowl has wallowed feathers or pieces of cloth or worsted or even long grass, nd the passage from the crop to the gizzard is blocked, so that the reatment given does not remove the lump and the fowl is worth reating, an operation can be performed by clearing off the feathers overing the top part of the crop, and making a short incision with very sharp penknife. The contents of the crop can then be taken ut gently with a small teaspoon; the crop can then be washed out

with warm water and permanganate of potash, using the forefinger to wash it out. The incision in the skin can then be stitched up and touched with castor oil. The fowl can then be given a teaspoonful of sweet oil and be kept from food for 12 hours.

(8) *Egg-Bound.*—Sometimes a fowl is seen going about with tail depressed and may go on the nest and sit for hours every day without laying an egg. Usually it will be found, on examination, that there is an egg that cannot be passed, either through some temporary constitutional weakness or an unusually large egg. Fat fowls are subject to this form of weakness. The fowl's vent should be held over a jug of hot water and the steam allowed to penetrate. The vent should also be oiled and a teaspoonful of sweet oil given twice a day. Usually this treatment will succeed.

(9) *Pip.*—In this trouble the fowl is seen breathing through its open mouth, and the tongue is found to have a hard skin grown over it,—a thickening of the membrane. In reality this is the outcome of the fowl's having suffered from roup, where the nostrils became choked, and the fowl was compelled to breathe through its mouth. The passing of the hot air through the mouth caused the tongue to become dry and hard. The usual treatment is to pick the thickened part off, but if the fowl is treated for roup it will soon be able to breathe properly, and the tongue will soon resume its normal condition.

(10) *Gapes.*—Sometimes fowls will be seen going about constantly gaping and trying to swallow as if something was sticking in their throat, and sometimes sneezing. The cause is a small thread-like worm which attaches itself to the windpipe. The eggs of this worm are found in the ground. There are several good ways of treatment; one is to take a little tar, either Stockholm tar or coal tar in a tin pan and stick a red-hot iron in it, holding the fowl's beak open over the fumes, taking care that the fowl gets an occasional breath. This is done three times, at intervals, say morning, noon and evening, and the worms will then be killed. This treatment causes the worms to lose hold and the chickens cough them up. Another treatment, but which requires more care and skill, is to take a fine feather, strip it, leaving a tuft at the end, dip this in permanganate of potash and water, or kerosene or turpentine, insert it in the windpipe, giving it a quick twist and withdrawing; usually the worms will come up on the feather.

(11) *Worms.*—Fowls suffer from worms more often than is suspected. If they are seen in the droppings, give a teaspoonful of castor oil with ten drops of turpentine, two days running.

(12) *Scaly Leg.*—This is a very common trouble among fowls and is usually neglected, so that the fowls suffer very much. It is a white mealy substance that grows upon the legs, and is made up of small mites that eat into the legs and cause a constant itch. It is so easy to treat that there should be no excuse (but wilful carelessness

fowls brought to Shows suffering from scaly leg badly. Make an ointment consisting of a tablespoonful of lard, a dessertspoonful of kerosene, and the same quantity of sulphur; mix well and rub hard into the leg every day for a week, then rub or pick off the scale and rub the ointment in again.

(13) *Bumble foot.*—Heavy birds are subject to an enlargement in the sole of the foot—most often called gout, here, but it is not of the nature of gout at all. It is caused by heavy birds flying down from the roost on to the hard ground and hitting gravel or anything sharp and hard. This trouble interferes with their walking and prevents them from serving properly. The enlargement ows sometimes to a large size. If taken at an early stage and the elling is painted with tincture of iodine between the toes and on e sole, and an oily bandage put on, this will reduce the swelling. bad cases the only chance to effect a cure is to cut out the growth. is has to be skilfully done or the wound will bleed excessively. e place cut should be bandaged with a cloth dipped in jeyes and ter,—not the raw jeyes,—and this should be renewed each day.

STOCK NOTES.

Cows.—Often cows, especially those with calves at foot and ich are milked hard at the same time, and especially when feedg is short, will not come in season, with the result that there is months and longer between calves.

A half-teaspoonful of nux vomica given in the familiar herring ll, daily for a week, will stimulate the cows to come in heat.

* * *

A Test for Milk.—A simple and effective test to determine hether water is present in milk, may be made with an ordinary itting-needle, if the needle is bright and well polished.

Dip the needle into the milk and quickly withdraw it in an upght position. If the milk contains only a small quantity of water is will prevent even a drop of milk adhering to the needle.

Everyone who has occasion to heat milk knows how easily it y be scorched.

When this does happen, the thing to do is to quickly remove vessel from the fire and stand it in a bowl of cold water. Put inch of salt into the milk and stir. It will then be found that the agreeable burnt taste has almost, if not entirely, disappeared.—*w Zealand Dairyman.*

* * *

Calves Coughing.—A correspondent asks: "What to do for lves constantly coughing a husky cough?" It may be "common ld;" in that case there will likely be also mucus at the nostrils; if persistent, it may be that not uncommon trouble "husk or ose," caused by a parasitical worm in the throat. As they are

if there is mucus, and also, for either trouble, place some Stockholm tar at the bottom of the milk pail, which the calves will lick after they finish their milk. For pasture-fed calves, either dose them with a tablespoonful each of Stockholm tar and 'wet' sugar, or make a lick of a mixture of one part of the same tar and three of salt, placed in a pan under cover to keep rain off.

Perhaps some reader may have something even simpler. We are specially asked for a simple and easy 'cure' and preventive. Some simple means of dealing with such troubles have already been described in the JOURNAL.

* * *

REMEDIES FOR INTERNAL PARASITES.—Where Strongyli are suspected to be in cattle, give half-drachm of Thymol daily for two or three days and three days after the last dose of Thymol, give three ounces of turpentine in a pint of fish oil.

For horses, give one drachm of Thymol for two days and three days after the last dose give four ounces turpentine and two-thirds of a quart bottle fish oil.

For bots in horses, give four drachms bi-sulphide of carbon, preferably made up into capsules; if not, in a pint of fish oil.—C. T. DEWAR.

An ordinary teaspoonful is approximately a drachm. An ordinary tablespoonful is approximately half an ounce.

* * *

MYSTERIOUS DISEASE.—A mysterious disease is raging, says the *Yorkshire Post*, among cattle in the Vale of Gilling, near Richmond. Mr. Christolm Law, of Crabtree Farm, Gilling, has already lost four prime bullocks and two heifers from the disease, and other animals are ill and not expected to recover. On the adjoining farm two beasts have died from the same disease. Mr. G. E. Nash, veterinary surgeon, of Richmond, has inspected the carcasses, but has been unable to recognise the disease. The matter was reported to the Board of Agriculture, and Mr. Ragg, from the head office in London, was sent down, and he took portions of the carcasses back to London to analyse, but as yet has not been able to diagnose the complaint. The chief symptoms are high temperature and bleeding at the bowels.—*Mark Lane Express*.

Is it marvellous therefore, that veterinaries should have differed as to the diagnosing of a disease in mules and horses here, which affected the mouth and feet in a fashion not known before?—ED.

* * *

CATTLE CHEWING BOARDS.—When cattle are seen chewing fence-posts, or old boards, bones, etc., lying in the pastures, or sometimes even chewing dirt, it may be taken as certain that there is something wrong with their condition.

First—either there is not lime, salts or phosphate enough in their food to supply what the system needs, or there is an acid condition of their stomachs, and they are seeking some corrective.

Where this occurs in dairy cows that are fed by hand, the feeding of wheat-bran with a handful of a condition powder containing charcoal, will be sufficient: or where wheat-bran is not available, corn can be charred then roughly ground and fed with salt.

For cows and calves in pastures, a mixture of coarse salt and bonemeal can be put down to be licked; failing bonemeal, salt and charcoal.

* * *

Warts on Cattle.—Warts are not dangerous but when there are many of them they diminish the value of the animal; and they may stunt the growth. At any rate they are a disfigurement, and are contagious, not only among cattle, but from cattle to man.

Where the warts are large and have a neck, a loop of horse hair drawn tight and renewed every week, will soon cause the head to drop off.

Where there are flat warts however, they generally can be twisted off with the fingers; and to stop the bleeding that occurs freely, the sore should be touched with tar or cauterised with a hot iron. A mere touch with a hot iron will be sufficient to stop the bleeding, and prevent the wart growing again.

This is the simplest tratment. Preparations of arsenic will burn them off, so will carbolic, so will one part of corrosive sublimate to 500 parts of spirits of wine. But arsenic, carbolic and corrosive sublimate are dangerous poisons to have about, and we do not care to advise dangerous things when there is any alternative.

* * *

Drench for Cows.—One pound epsom or glauber salts, 2ozs. powdered ginger, 1lb. wet sugar, dissolved in a quart of hot water, the drench to be given luke-warm. All dairy cows heavy in calf should be given this drench a week before they are due to drop, at least, not later than three days before they drop.

* * *

To Test Eggs.—To ascertain whether an egg is good or bad, hold it to the light. A good egg is translucent, but a bad one is perfectly opaque. An ordinary way is to take them into a room moderately dark and hold them between the eye and candle or lamp. If the egg be good—that is if the albumen is still unaffected—the light will shine through with a reddish glow, while, if affected, it will be opaque or dark. The following method is based upon the decrease in the density of eggs as they grow old. Placed in water, an egg, if fresh, will remain at the bottom of the vessel; if not quite fresh, it will rest with the big end raised higher than the small end, and the higher the big end is rased the older is the egg.

An immense sum of money is spent by the United States Government on its Agricultural Department, but there is never any difficulty as to obtaining it. Nobody, so far as we have heard, has ever questioned the wisdom of this policy. The money spent on these investigations is regarded as a national investment of the soundest character.

POTATOES.

We expect our consignment of seed potatoes to arrive towards the end of this month. We shall have some of the finest varieties of second earlies now favoured in England, but only a small quantity. We have tested these varieties before, and they were vigorous growers and of fine quality. We shall also have the old favourite "Early Rose," from Nova Scotia.

Land that has been already turned over, should now be in very good tilth, owing to the fine rains that have fallen steadily for a month back, and all that is needed now is to spread good manure on the soil if the land is not rich enough, and make the drills. There is no absolute iron-bound rule about growing and manuring potatoes here. The procedure in wet weather must be different from dry weather, and in wet districts from dry districts, to some extent. If the manure is put on long ahead with such heavy rains as we are having, the virtue of it will be washed out,—on hillsides washed away, and on flat lands washed through the soil. The best way is to incorporate the manure with the soil when the drills are being made. On the other hand, in the springtime when the weather is usually dry, it is good practice to put the manure on the ground well ahead so that when the drills are made, the top soil has been soaked with the manurial elements.

Where land has not been prepared there is no time to be lost now. Turn over the soil deeply, leave it for a few days, or as long as you can, to weather, and then make drills when your seed comes to hand and is found ready for planting.

As regards the seed, if the potatoes are large, they can be cut in two sets, sometimes three. Medium sized potatoes may be cut generally in two sets, but it is better not to plant the stem end unless it has well-developed eyes, as these sets take longer to grow, often grow spindly, and spoil the appearance of, and the results from, the field. Potatoes are generally sprouted when received, but if not, should be kept until they are sprouted, but should not be left long enough for the sprouts to grow long, as they are apt then to get broken off. If the potatoes are spread out under cover they will soon sprout as a rule, but if they are hard to sprout, they can be put in a heap and covered with damp straw for three or four days, not long enough to rot them. This will start the eyes.

From England as a rule, the seed potatoes come regular seed size, having been graded, and these can be planted whole.

Make the drills not less than five inches deep and plant not less than four inches, that is after covering over level, the bottom of the set should be at least four inches from the surface. Do not, however, fill the drills quite level. When the green sprouts appear above the earth two or three inches high, the earth can be drawn into them, and if there is plenty of rain so that the climate is forcing, as in the lowlands, and the stems grow luxuriantly, they will require some

hilling up. At the same time in a hot climate, the object is to keep *the roots cool so as little hilling* as possible should be done. Make the drills from 2ft. to 2ft. 6 inches apart according to climate and whether hand cultivation or horse cultivation is used. Horse cultivation requires the wider planting. Plant the seeds not closer than nine inches and not more than 12 inches apart,—according to locality, in the lowlands where there are good seasons and in rich soil wider, in the hills and in dry places closer.

Potatoes here usually take from nine to twelve weeks from planting until fit to lift according to variety.

SEASONABLE HINTS.

We are having such grand rains that almost any seeds and plants could have been planted in October, and the ground is so well saturated that if land has been well prepared, planting can still take place early in November, with a good probability of everything planted making a good start.

Young cocoa trees may be set out, also coffee, oranges, and any fruit trees whatsoever. There are always exceptions to rules. It is the rule in transplanting trees to cut well back, and no half measures should be made in this way. We have always found that it saves time in the end and ensures growth in case dry weather sets in, in the spring to cut young orange trees back severely. Take off the side branches and cut the stems back within an inch of the hard wood, at the same time pruning the roots with a smooth cut, and taking off all the fibrous roots. In planting orange trees and all other fruit trees, take care to allow for sinkage—you must not on any account have the neck of the tree below the level of the surrounding soil. Note how a seedling tree grows in the bush with its top roots clear of the soil. Always press the soil tightly around the roots.

In planting coffee we still see all about young plants or "suckers" torn up (not dug up as they should be) from an old coffee-piece and stuck in with all the leaves on. The result is, the leaves simply dry up, and if dry weather were to come on, most plants so set would die ; in the best of weather they grow slowly. It is better to take off side branches and cut back to a stump, and plant leaning to the side. A fine healthy shoot will then start very soon, and grow with great rapidity and soon outstrip those planted without cutting back.

The exception to the general rule about cutting back is young cocoa. These plants cannot satisfactorily be cut, but it is good to clip off some of the leaves (not tear off) when transplanting, to balance the breaking of the roots.

The first and second week in November forms the best planting season for vegetables in the lowlands and in the middle hills. In the high mountains, that is, say over 2,000 feet, the spring

season planting gives better results than the growth in the colder season. We have written a separate paragraph about potatoes in this JOURNAL and for hints as to planting vegetable seed, we refer readers to the hints in the last JOURNAL.

As for all we know dry weather may again set in in the middle of January, those in dry districts who keep stock should devote a piece of spare ground for growing some special food for them, to be held in reserve—we recommend guinea corn, sorghum, which is a hardy form of guinea corn used only for forage, velvet beans and beggar weed. But if a special patch of guinea grass is cut off now, forked or ploughed between roots and then mulched, luxuriant growth will result and the mulched soil will enable it to stand months of drought, as well as any of the plants mentioned above, only these are more nutritious.

PRIZE HOLDINGS COMPETITION.

The judging of the Prize Holdings Competition has been arranged to take place as follows. Intending competitors please note:—

1. St. Thomas, Tuesday, November 2nd, to Friday 19th November.
2. St. Catherine, Wednesday, December 1st, to Friday, 17th December.
3. Trelawny, Wednesday, 26th January, to Saturday, 5th February.
4. Portland, Monday, 14th February, to Saturday, 5th March.

SHOWS.

The following shows are arranged :—

Santa Cruz Mountains at Malvern		11th November
Hectors River	-	23rd December
Appleton, at Siloah	-	27th December
Porus, at Porus	-	30th ,,
Darliston, at Enfield	-	1st January, 1910
St. Faiths, at Glengoffe	-	17th March

The Cayman Islands are also holding a show in December. The Branch at Bog Walk may also hold their show on 31st March. Smithville Branch are arranging their first show for 13th April; Mears Pen have fixed theirs for 21st April, while Christiana Branch is also arranging a show for the beginning of April.

PRICKLY PEAR MOSQUITO PREVENTIVE.—M. Sanzean de Puybernean, a French physician, has made the discovery that the leaves of the common prickly pear, if chopped up and thrown into water, will prevent mosquitoes breeding in the water for weeks or months. The resinous mucilage of the leaves floats on the water surface, and chokes the breathing tubes of the mosquito. Further, in stagnant foetid water the prickly pear juice has the property of absorbing the gases of decomposition.

COMMENTS.

CASSAVA.—We hope the fact is appreciated that cassava is a widely-grown product in the tropics, and that its products are in the market already from other countries. In the Malay Archipelago, for instance, it is largely grown commercially, there being some 10,000 acres under cultivation—there always called tapioca—and it is exported in dried chunks to Great Britain, where starch and the tapioca of commerce are made from it. The dried chunks fetch about £5 a ton.

* * *

FRUIT PRE-COOLING PLANTS FOR A WESTERN RAILWAY.—It is announced by the Southern Pacific Railway that it intends to spend a million dollars in the near future in the construction of plants for pre-cooling fruits and vegetables, the object being to permit of long hauls of perishable freight with little risk of decay. The device consists of a plant equipped to force through the loaded cars under a vacuum pressure, blasts of air that have been previously passed over ice. Two large plants; one of which will be capable of chilling twenty carloads in four hours, and the other forty carloads in four hours, will be erected. It is expected that with the use of this new method, it will be possible to overcome entirely the loss of time and consequent loss by decay, in shipments of California fruits and vegetables to eastern markets.

* * *

APTERITE.—We should be glad to hear from those who received supplies of the proprietary article Apterite, for application to the roots of cocoa trees, etc., to kill grubs and insect pests. We should like to have reports if there have been any results.

* * *

TEACHERS' AGRICULTURAL COURSE.—The usual Agricultural Course for teachers will be held at the Mico and Hope Gardens, on 29th December–21st January (inclusive). Teachers desiring to be present are requested to *send in applications at once to the Education Department.*

Railway fares and board and lodging will be provided for all selected teachers and an allowance will be made of 3d. a mile each way for every mile over six miles that needs to be travelled by road. The Agricultural Instructors, Mr. J. T. Palache and Mr. H. Q. Levy, will attend the course to give instructions in field work.

* * *

BIRDS.—In the newspapers for Friday, October 8th, were printed some interesting communications between Sir Harry Johnston, who was lately out here on a visit (and whose magnificent record of colonial work in Africa, entitles him to speak with authority and to have respect paid to his opinions), the Under Secretary of State for the Colonies, and our Governor, Sir Sydney Olivier, with regard to the protection of birds, and also the protection of beauty

spots of the island such as concerning Fern Gully, in St. Ann's, which, to enable a few more bananas to be grown, has had its magnificent ferns almost wholly destroyed. The particular causes of loss of birds are mentioned in the correspondence as, the mongoose, of ground feeding birds and the human being with his gun and catapult of other birds. We are of opinion that the rat and John Crow prevent the increase of birds as much as any other agency by the destruction of eggs and young birds.

We appeal to our readers to prevent the use of catapults as far as they can. We also draw attention to the fact that the youngsters in many families are now being supplied with little air guns which carry small bullets and are particularly destructive to small birds. In all cases improvement should begin at home, and boys should be presented with some other form of amusement than a deadly agency for destroying small birds, and these too, invariably those confiding small birds that appear about the homestead hunting insects and grubs.

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Rats.—The difficulty of getting rats under control is greater because usually it is only one person here and there that troubles to keep up a fight against them. It is the same case with other pests—fleas, flies, ants, mosquitoes, etc. We hear the same story every day from those who are fighting hard against every kind of pest: and it is our experience too, that in a district, probably only one person uses his or her wits in poisoning and trapping and in destroying by every possible means the greatest of all pests, rats.

Our Jamaica rats seem to be different from what we read about and had experience of elsewhere. Our own particular brand of rat for instance, took the first dose of the Rat Virus called "Ratin," and this stuff was effective in clearing out a venerable fellow who had caused much loss and who had defied several other known agencies for killing rats for a long time, to get rid of him. But the next setting of this attractive bait was not touched.

From a correspondent,—a sugar planter—"The rats are again as they were prior to the importation of the mongoose, very numerous and destructive, in spite of all poisons and virus set for them."

Mongoose, cats and terriers are the best antidotes, but mongoose are scarce now, thanks to the persistent and irrational persecution that has been going on.

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Foot and Mouth Disease.—In the Journal for May this year, we gave a full description of the various forms of foot and mouth disease which have been prevalent in the island lately, and described fully how these should be treated. A leaflet was also issued describing these troubles, yet we continue to receive letters reporting cases to us, and asking how these should be treated.

On referring to the article mentioned, we find that it is so plain

The *moral* is, *keep your* JOURNALS *carefully and refer back to* them first before writing us, when you are in doubt about anything agricultural.

* * *

PARANAPH,—A leaflet is now ready explaining the uses of "Paranaph" for destroying fleas on dogs and in houses, lice on goats, and ticks on cows. It can also be used for scale insects on orange trees (but not white scale) in place of Kerosene Emulsion; in fact, it is a ready made Kerosene Emulsion, and so is very handy. Wholesale and retail from the Government Laboratory, 2d. per lb. Small sample quantities can be had from this office at 3d. per lb.

* * *

COCOA.—The Imperial Department of Agriculture have issued another of their usual booklets (No. 61, price 4d.) on the "Grafting of Cocoa." As the Commissioner of Agriculture states in his preface, it is not difficult or expensive to produce grafted trees, nor does it require a very long time, while the directions given are so simple and concise that any planter should be able to carry out for himself all the operations of grafting. The grafting of cocoa, the Commissioner remarks, makes it possible for planters to propagate directly from any tree which possesses good characteristics, and so improve the quality and quantity of their crops, and also secure the production of absolute uniformity of beans. Early bearing is another desirable quality insured by grafting, and it has been found that grafted trees always develop a low spreading form, which is of great advantage in picking the pods and is a protection against wind.

Results are quoted showing what grafted trees have done at the Dominica Botanical Station under *field conditions*. Mr. Hart of Trinidad also writes favourably of the grafting of cocoa. Readers must understand that grafting and budding are two different things.

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STALLION.—Applications are desired from districts wishing for the services of the Pony Stallion "Sir Gerald," which stood in St. Ann last year. Season begins in January.

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QUESTION OF ROADS.—No question is more pertinent to the welfare of agriculture in Jamaica, than the question of good roads. The same question is the most engrossing subject we observe at the Farmers' Societies throughout the United States, in Australia, and in South Africa. At a meeting of the Natal Agricultural Union for instance, the following resolution was passed: "It is the opinion of this Union that a policy for the general and gradual grading and hardening of the roads be initiated; and that a special amount be annually voted for the purpose."

We have good roads in Jamaica—better than anywhere else in the West Indies—but that is no reason why they should not be still further improved and extended.

COCONUTS.—Those who are planting coconuts should remember that as much care should be exercised in choosing the nuts to plant as in choosing any other seed, more care indeed, seeing that it takes five to seven years for a coconut to bear, and we expect them to give returns for a lifetime. It should be plain that the greatest possible care should be taken, not only to secure fine nuts from vigorous trees, but also to secure a good variety, as there are many different shaped nuts.

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RUBBER.—In the annual report of the Director of Agriculture for the Malay States, it is stated that the average yield per tree for the year 1907, was 1lb. 12ozs: this includes all trees that were tapped, old and young. In one of the States the average is 2lbs. 7ozs., and another 2lbs. 1oz. Selangor had the lowest yield, 1lb. 7½ozs. It has to be remembered that this is the yield of 599,184 trees tapped, but altogether there are over 27½ million trees growing, covering an acreage of 179,227 acres.

There were 10,745,000 trees planted in 1906, and the output of rubber in 1907 was 1,984,285lbs. Some of the plantations grow cassava, or tapioca as they call it, there, as a catch crop. There is a rainfall of 100 inches a year, while we always think of cassava as a dry land crop.

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JOURNAL.—In November JOURNAL some important matter will appear—there will be some papers read before Branch Societies containing exceedingly useful and practical hints. Two of these papers were read before the Upper Metcalfe Branch, and two before the Christiana Branch, and the authors know what they are writing about.

These papers were on the following subjects:—Growing of Yams, Bananas, Coffee, and Curing of Coffee.

Articles will also appear containing hints to exhibitors at Shows, and hints to Show Committees. These are written by ourselves.

COCOA.

I suffered very much with black rot in my cocoa crop last Christmas. Since then I have cut out all the shade I can spare, and burned all my broken pods. You could perhaps inform me of the price of a spraying outfit and where I could get it. In making Bordeaux mixture, the trouble is to get temper lime, perhaps you could tell me where to get it. I have no black rot now, but I may get a relapse at Christmas, and as I have an enormous crop coming I would like to prepare.

I also see you have some velvet beans for sale. I would like to get a supply of a quart or so. You kindly sent me some before, but I think they were Bengal beans. I have already planted them.

I may say I have no canker now, but I suffered a while ago from root disease, and once now and then I get a single case.—CORRESPONDENT, St. Thomas-in-ye-East.

[The question of regulation of shade is important and the degree of shade is a matter of judgment and will vary according to location.—Ed.]

BRANCH NOTES.

Porus (Clarendon).---The usual monthly meeting of this Branch was held on Monday Evening at 7 p.m.. in the St. Augustine Schoolroom. The Vice-president, S. A. Hendrick. Esq., J.P., being absent. it was unanimously agreed upon that Mr. O. N. Magnus preside. At the roll call, 15 members responded to their names. The following new members were enrolled : Messrs. W. A. Robertson, G. Gordon and Alex. Brown. The minutes of the previous meeting were read and confirmed. Correspondence.—The Secretary read a letter from Mr. H. C. Henrickson, of the Agricultural Bureau, German Kali Works, Cuba, who sent some literature to the Society and has kindly promised in his letter. to forward some more of these pamphlets on the application of the Society. The Secretary was instructed to write Mr. Henrickson thanking him for letter and literature sent and for his kind future offer. Paper on soil.—A very interesting and valuable paper on the Soil, was read by Mr. L. A. Hylton. A vote of thanks was moved by Mr. Magnus and seconded by Mr. W. Morgan, to Mr. Hylton for his paper. Show.—Mr. A. S. Rose. the Secretary of the Show Committee, is very enthusiastic about this business. Circulars and collecting hooks have been issued. Subscriptions are coming in. We learn that there will be no Kendal Show this year, therefore we are looking forward to have a very successful show. It was suggested by Mr. Alex. Thomas, that Mr. Hirst, the Agricultural Instructor for Clarendon, be asked to become a member of the Show Committee. This was moved, seconded and became the unanimous feeling of the members, that Mr. Hirst be written to and asked to become a member of the Show Committee. The meeting then adjourned until October 4th.—C. S. MORRIS, Assistant Secretary.

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St. Faith's (St. Catherine).—This Branch (late Glengoffe and Above Rocks, now combined) met in the Grateful Hill Schoolroom, on Thursday, September 9th. Present : Rev. T. M. Sherlock (presiding) Messrs. W. L. Rainford, Vice-president ; J. Briscoe, Travelling Instructor ; Geo. Carey, T. A. Thomas, W. Gobay, Jno. Harper, W. Turner, A. Wills. E. Lawrence, R. Howell, A. Leslie and W. L. F. Vassall, Secretary. The President explained and regretted the illness of Mr. Hanson, which necessitated his absence. A letter from Mr. Barclay *re* the alterations to rule 3 of Prize Holdings Competition, as proposed at the last meeting, was read. It was decided that the matter be dealt with at the next half-yearly meeting of the Jamaica Agricultural Society. The Committee appointed to select suitable grounds for the Show, reported that the best available spot had been obtained. Mr. Briscoe said he had seen the proposed ground and was highly satisfied with it. A Show Committee was appointed to meet in St. Mary's Schoolroom on the 30th of September. A communication formerly sent by Mr. Briscoe, and showing the time necessary for the growth of different crops of vegetables, was read. It was decided that the persons appointed to collect subscriptions for the Show, be empowered to start at once. Mr. Briscoe spoke at length on both the Show and the Prize Holdings. In the interval Mr. S. A. Thomas read an interesting paper on the early history of the jippi-jappa hat in Jamaica. A vote of thanks to Mr. Briscoe was unanimously carried and the meeting adjourned. A movement was taken up here to have a local representative on the Parochial Board, and a deputation of the Society waited upon Mr. Louis McCormack to ask him to allow himself to be nominated. As however, this was only on the day preceding the nominations, the gentleman found

it impossible to accede so readily to the request. There has been an almost continued downpour of rain for three weeks: with a few puffs of breeze, but no damage has been done. The roads are, however, rather bad. *There is much talk here about the show proposed for next March.* —W. L. F. VASSALL, Assistant Secretary.

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Upper Metcalfe (St. Mary).—This Branch had its regular monthly meeting in the Brainerd Schoolroom on the 23rd September In spite of *the threatening state of the weather, there was a fair attendance.* Cecil Abrahams, Esq., presided. After the opening formalities had been gone through, booklets and leaflets from Mr. Cradwick treating on cocoa diseases, *were distributed to the members.* These were much appreciated, as our best cocoa plantations are being ruined. We look forward eagerly to Mr. Cradwick's visit during next month. Mr. Jno. Simmonds read a paper upon "The *Proper culture of the Yam*" and Mr Abrahams upon "The Proper Culture of the Banana." The debate upon "The Yam or the Banana, which is more profitable," followed. A great deal of interest was exhibited. Each member was anxious to give either what was the outcome of experience or of imagination. The profits accruing from an acre of yams per year as given, varying from £3 to £83 and that from an acre of bananas from £12 to £20. The following facts were brought out: Improvements were thrown into the cultivation of the banana from year to year, while the yam was now being cultivated in the district just as it was 60 years ago, and was thus sadly neglected. Yam cultivation could be greatly improved by putting in a few trenches across the steep hill-sides to prevent the heavy washing and the consequent over-deep burying of the plants, also by paying more attention to the proper time of putting in the plants and by digging deeper. Manuring was also recommended. On the vote being taken, there was a majority of two for the banana. The following new members were enrolled: Messrs. Thaddeus Green, Peter Tennant, Edward Willis, James Grant, Alexander Duncan, George Pollock, Alexander Buchanan, Egbert Watson, Nehemiah Leckie, Thomas Leckie, Joseph Black, Joseph Buchanan, Absalom Ward, James Perrin and Mrs. Isabella Watson. The meeting adjourned —SAML. A. SCHLEIFER, Secretary.

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Christiana (Manchester).---The quarterly meeting of this Branch was held at Christiana Courthouse on Friday, 1st October, 1909. In the absence of the President and Vice-president, Mr. W. C. Leslie, Assistant Secretary, was voted to the Chair. The attendance was small. The meeting was graced by the presence of Mrs. A. C. Walder, of Sunny Lodge, and Mrs. A. Walder, of Tan-y-Bryn. *Mr. J. T. Palache,* Instructor for the district, was also present. The minutes of the last meeting were read, adjusted and confirmed. The Secretary stated that he had sent out 50 circulars to members who had failed to pay their subscriptions and had received replies from only 10. Read letters from the Secretary of the parent Society. Read letter from Mrs. K. H. Bourne, asking the Society to give every assistance to the *Society for the Protection of Animals.* The Secretary was instructed to reply that the Society would do all in its power. Read letter from the German Kali Works in Cuba, forwarding *some literature and offering to supply the Society with further* copies of their pamphlets. The Secretary was instructed to thank the Company for their literature and generous offer, and to ask them *to forward a supply of their manures to be distributed and experimented on by* members. A letter from the Trinity Ville Branch asking for information about the loan bank, was handed over to the Secretary of the loan bank. *The subject of the Christiana Show came up for discussion. It was agreed* to call a special meeting of all the members for Friday, 22nd August; the meeting to begin at 11 a.m. Mr Palache promised to be present. It

was decided to invite the ladies to be present. The discussion of the new *Prædial Larceny Law* was postponed to the next quarterly meeting. Mr. J. H. Lewison, teacher at Mizpah school, was called upon to deliver a lecture on coffee growing and cultivation, which he had promised to give. The lecture was listened to with careful attention. This lecture was followed by a second on the subject of coffee curing, by Mr. A. Walder, of Sunny Lodge, which also was listened to with great interest. A discussion followed, in which Messrs. Easy, Palache and Bailey took part. Mr. Palache, in moving a vote of thanks to the lecturers, congratulated the Society on entering on a new epoch, when such admirable papers are read by the members of the Society. He would like to re-christen the Christiana Branch and name it the Pioneer Branch. The speaker dwelt on the success of Mr. Lewison, and designated him as a safe guide. No less highly did he praise the lecture of Mr. Walder, who had dealt exhaustively with the subject of curing and had proved by figures the wisdom of careful attention to this part of coffee production. Mr. Palache pointed out the need of co-operative curing establishments. Mr. Flemming, in a few well-chosen words, seconded the vote of thanks. The Secretary in supporting the vote, referred to Mr. Walder's curing establishment. The vote of thanks was accorded unanimously. It was moved by Mr. Palache and seconded by Mr. Easy, that the lecturers be asked to allow their lectures to appear in print, and that the editor of the JOURNAL be requested to insert them in the JOURNAL.---Carried. The lecturers consented to the lectures being printed. The Instructor promised to lecture on Dairy Cattle at the next quarterly meeting and asked some of the members to bring their cows. Mr. James Taylor of the Alston Sub-branch, addressed the meeting on the bad state of the road from Alston to Moravia. The Society promised to support the petition that is to be drawn up by the Sub-branch. The matter will be attended to at the special meeting. The meeting adjourned.—H. F. WEISS, Secretary.

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Lucea (Hanover).—This Branch met on the 25th September, 1909, C. A. Cover, Esq., B.A., President, in the chair. The minutes of last meeting were read and confirmed. The Chairman stated that the quarterly meeting had been postponed from 14th August on account of the absence from the parish of the officers. Mr. W. O. Reid, Secretary, having left for another part of the island, the Rev. D. A. Rothnie (one of the Vice-presidents) was asked to act as Secretary and Treasurer until the annual meeting. Small Holdings Competition.---Mr. Mennell, Agricultural Instructor, reported that he had succeeded in getting only 53 entries for the competition, of whom 17 had not yet paid their membership fee; these will only be eligible if the fee is paid before the judging takes place. Read letter from Secretary Jamaica Agricultural Society, 21st June, 2486, stating that Mr. H. Q. Levy, Instructor for St. James and Trelawny, would in all probability, be available to assist Mr. Mennell in judging the Prize Holdings. It was suggested that in the event of his not being available, Mr. Barclay, who intended visiting Mr. Mennell's districts, might be asked to try to arrange his visit to fit in at the time of the judging. Mr. Mennell reported that he would commence judging on 8th November and finish on 20th November. It was agreed to hold the next quarterly meeting on 27th November, so that Mr. Mennell might submit the results of the Competition. The Secretary was instructed to get 25 posters printed giving notice in the various districts when the judging would take place. Read letter 16th July, 1909, 2808, from the Secretary of the Jamaica Agricultural Society in *re* cocoanut disease, experimental plots, arrowroot, and jippi-jappa straw-curing; contents noted. It was decided to let it be as widely known as possible that copies of Mr. Williams' book on School Gardens, may be had through Mr. Mennell at 1/- per copy. Funds: After meeting liabilities there will be available for prizes, the amount of £5 15s. 5d. A further effort will have to be made to get donations from gentle-

men interested. The meeting then adjourned.—D. A. ROTHNIE, Acting Secretary.

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Portland Central (St. **Margaret's Bay**).—A *meeting of this Branch was* held at St. Margaret's Bay, on Saturday, the 25th September, 1909, when there were present among others: Messrs. J. M. Roper, Vice-president, in the chair, W. Cradwick, Travelling Instructor, Jno. Napeir, W. B. Brice, C. M. Harris, J. S. Williams, W. N. Patterson, V. Z. Brown, Albert Roper (snr. and jnr.), Alfred Roper, N. Bradshaw and R. A. Henry, Secretary. After the reading and confirming of the minutes, a letter from the President regretting his absence through being ill, and suggesting certain points to be considered *re* rumour of the removal of Police Station, etc., was read, as also letters from Hon. A. A. Brown and Jno. Barclay, Esq., relative to the proposed new driving road to Berrydale. This subject, the proposed new road to Berrydale, a distance of about four miles, came in for a warm discussion The hon. representative of the parish, who to the deep regret of the members, is now ill, but to whom the Society tendered its sincere wish of a speedy recovery, has promised to give every attention to this matter. The Society tendered its best thanks to Mr. N. Bradshaw of Cooper's Hill, and Messrs. O. T. Shelton, Jno. Napeir, C. M. Harris, Albert Roper, jnr., and V. Z. Brown, representatives of the different companies buying fruits in the village, for the valuable help given in the matter. It was found that approximately over 5,000 stems of bananas are shipped from the districts around Berrydale, every week, at very great inconvenience down the river on rafts, beside an approximate average of about 3,000 coconuts and 3cwt. cocoes weekly. It was also thought that fully 50% more would come out if the road was opened. The approximate number of carts and drays that might be used on this road during the crop season, was thought to be about 20 daily. The committee on this matter thought the proposed route would be a rather easy and inexpensive cut. The Secretary was instructed to get up a full report of this matter after getting from the Collector of Taxes, the number of holdings in 18 districts that would be opened up by this road. It has been rumoured about the district of St. Margaret's Bay, that the Government anticipates the removal of the Constabulary Station from this village and this too came in for a warm discussion. It was the opinion of the meeting that if this step be carried out it would be little short of a calamity. Speedy steps are now being taken to get this rumour confirmed or contradicted. A deputation was formed to wait on the Governor on this matter if necessity arises and a subscription list opened to help this deputation. The unsatisfactory working of the Post Office, which at present is at the railway station, came in for discussion and a committee was formed to consider the matter. The Society is warm on having their next show next June, and a monster picnic is arranged for the 27th December to augment its funds. Mr. W. Cradwick next gave an exhaustive and most instructive lecture on the Prize Holdings Competition to be held in February or March next year. From the many questions on the subject put by various members and the rapt attention paid to the lecture, a lively competition is anticipated. After a hearty vote of thanks to the lecturer, and a promise by the Society to help in this matter, the meeting was adjourned to Saturday, the 16th October.—R. A. HENRY, Secretary.

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Fair Prospect (Portland).—The postponed monthly meeting of this Branch was held on Saturday, 25th September, 1909. Present: Messrs. J. Panton, second Vice-president, in the chair, J. W. Munroe, D. S. Munroe, W. A. Ellison, C. B. Duncan, George Duncan and W. Z. Buckley, Secretary. Prayer, reading and confirmation of minutes; presenting of report of Fork Committee, which report was agreed on to be laid over for

it was agreed that the Fork Committee meet before the next general meeting and reconsider the rules laid down, with a view of inserting, if possible, a motion to include outsiders. The President here came in and the Vice-president gave him the chair. The Secretary asked permission to let him, for the President's information, briefly rehearse what had been done in the present meeting—leave was granted. Correspondence next followed. Amongst the many letters read and discussed, were some from the Secretary of the parent Society, and the Acting Director of Agriculture, on seedling canes. Profitable discussions, which resulted in some active moves, ensued. The cassava business was another matter dealt with. In reply to a letter from the local Instructor, the Secretary was instructed to reply stating that the Society has no funds in hand to conduct an experimental plot. It was feared that one shilling per cwt. could not pay to sell cassava at. Members were, however, encouraged to try each a square chain or so by way of experiment. It was also suggested that members who now own any quantity of fit cassava, would take, say a shilling's worth, as is commonly sold, weigh it and see how near in the neighbourhood of a cwt. it runs, also to see how much starch it fetches. The following motion put by L. A. C. Brown, seconded by R. H. Elworthy, was passed: "That the old arrangement of District Committee in connection with this Branch, be energetically pushed, in order to widen the scope of the Branch and to facilitate the work of the Instructor. The next motion was also put by L. A. C. Brown, seconded by J. W. Munroe and adopted: "That now that we have an energetic local Instructor in our midst, steps be taken for the holding of a small show in connection with this Branch, at the end of present year, or early next year." There was some requisition for application forms in *re* the Prize Holdings Competition. The Secretary was directed to refer to the local Instructor. Mr. W. A. Ellison was asked to lecture at next meeting.—W. Zechariah Buckley, Secretary.

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St. John's (St. Catherine).—Since July last, all our meetings have been washed out by heavy rains. The heaviest rains have, however, fallen during this month, September. Since the 13th we have been having the real old time "October seasons." Surely the havoc wrought by the drought of 1907, to plants and ponds, ought to be obliterated by these fine showers. This is the seventh September since my advent in this part of St. Catherine and I can confidently say that this is the most severe weather since then. Generally from about 2 p.m. to 6 a.m., it is with difficulty that any one can get out. The "Dry River" has overflowed its banks more than once; the stone-holes are filled; the ponds too are filled to overflowing. It is only the Kitson Town tank that is not filled. Of course I am not surprised, for unless the whole district is laid under water, a thing we would pray to be delivered from, it will never be filled in its present condition. The taxpayers here would rest in peace if the authorities that were responsible for seeing that the ponds at Aylmers and Belmont were in a fit condition to receive water, had not unnecessarily delayed the cleaning thereof until the seasons are on. Since midsummer last year, we had been asking for a speedy completion. At present it is impossible to do any cleaning. On the whole the prospects here are not bad. Foodstuffs should not be scarce during the coming year. They are now plentiful.—S. A. Banton, Secretary.

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Pedro (St. Ann).—The regular fortnightly meeting of the Pedro Branch Agricultural and Improvement Society was held on Thursday night, 23rd inst., at its usual rendezvous. Owing to severe rains and inclement weather, only 13 of the members were present. In the absence of the President, the Vice-president occupied the chair. Meeting began with singing of song "Summer Time," and prayer by Mr. C. McNuff.

Minutes of last meeting were read by Assistant Secretary and confirmed by members. Four new members were enrolled. Mr. W. J. Francis briefly and satisfactorily outlined the various agencies at work in the formation of soils. The President being absent his lecture was not given. The next item on the agenda was a recitation by Mr. Robt. Cole. He also, was delinquent. The Assistant Secretary, however, contributed "The Psalm of Life," in place of his. Next followed the very amusing yet highly instructive reading, "Sayings of Poor Richard," by Mr. J. A. Francis. The reader was heartily thanked and many of Richard's wise sayings digested by members. At this juncture, the debate on Present *vs.* Past Times, was warmly dealt with. Messrs. E. Beckford and E. Mills being absent, Mr. Isaac Henry supported the Present, and Mr. C. McNuff the Past. The latter handled the subject proficiently, and forcibly brought forth many weighty arguments and facts, confirming the supremacy of the Past over the Present. Among numerous facts, he pointed out that in past days, prædial larceny was not as rampant as it is at present, and which is so detestable a practice by true sons of Jamaica. At the close of this debate the following fixtures were arranged for next meeting: 1. Paper on the Kinds of Soils, by the President; 2. Recitation by Miss P. Simpson; 3. Reading by Mr. H. Cole; 4. Discussion on paper *How to Improve Homelife*; writer of this paper to be Miss Hemming. Another song was also taught: "Life is What we Make it." After dealing with miscellaneous matters, the meeting terminated with singing of National Anthem and Benediction.—T. A. G. SMALL, Assistant and Reporting Secretary,

The regular fortnightly meeting of the Pedro Branch Agricultural and Improvement Society was successfully held on Thursday evening, 7th inst., at the Waltham Baptist Chapel. The attendance was fair, in spite of the inclement state of the weather. Meeting began with song entitled "Summer Time," and prayer by President, who presided. The minutes of the last meeting were read by Assistant Secretary and confirmed. Next followed the enrolment of new members, when Mr. D. A. Grant, having paid his subscription, was enrolled as a member. At this juncture we were treated to a very well rendered recitation entitled "Good Counsel," by Miss P. Simpson. A hearty vote of thanks was proposed, and carried for the reciter. The next item on the agenda was a lecture by the President, who eloquently and fluently lectured on the different kinds of soils, and how to improve them, to the satisfaction, and applause of every one. A hearty vote of thanks was also proposed and carried unanimously for the President. Mr. H. Cole's reading fell through as he was not present. The song entitled "Heart Flowers," was then sung by members, to arouse interest and animation for the warm discussion on Home Life, and how to improve it, which then followed. The writer of this paper was heartily thanked; after which a warm and spirited discussion followed, when several of the members present added their quota of intelligent discussion on the topic. At this stage the fixtures for next meeting were arranged, which are as follows: 1. Paper on "Manure," by Mr. Gohagen; 2. Reading by Miss T. J. Fletcher; 3. Recitation, by Miss E. Gohagen; 4. Debate on the proposed motor car system *vs.* present mode of conveyance. Mr. A. Mills will be the supporter of the proposed car system and Mr. Grant for the present system of conveyance. After dealing with miscellaneous matters, meeting adjourned for next meeting, which will be on Thursday, October 21st inst., at 7 p.m.—T. A. G. SMALL, Assistant and Reporting Secretary.

PUT a pinch of salt into kerosene oil lamps for a more brilliant light. For a polish, rub the chimneys with fine salt.

WRING a cloth from vinegar and wrap it several thicknesses around cheese to keep it from moulding or drying.